



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0977; Product Identifier 2018-CE-041-AD]

RIN 2120-AA64

Airworthiness Directives; Rockwell Collins, Inc. Flight Management Systems

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Rockwell Collins, Inc. (Rockwell Collins) flight management systems (FMS) installed on airplanes. This proposed AD was prompted by reports of the flight management computer (FMC) software issuing incorrect turn commands when the altitude climb field is edited or the temperature compensation is activated on the FMS control display unit. This proposed AD would require disabling the automatic temperature compensation feature of the FMS through the configuration strapping units (CSU) and revising the airplane flight manual (AFM) Limitations section. We are proposing this AD to address the unsafe condition on these products.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Rockwell Collins, Inc., Collins Aviation Services, 400 Collins Road NE, M/S 164-100, Cedar Rapids, IA 52498-0001; telephone: 888-265-5467 (U.S.) or 319-265-5467; fax: 319-295-4941 (outside U.S.); email: techmanuals@rockwellcollins.com; Internet: http://www.rockwellcollins.com/Services_and_Support/Publications.aspx. You may review copies of the referenced service information at the FAA, Policy and Innovation Division, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0977; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Avi Acharya, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; phone: 316-946-4192; fax: 316-946-4107; email: avishek.acharya@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2018-0977; Product Identifier 2018-CE-041-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this NPRM.

Discussion

During flight inspection on a Bombardier Model CRJ-200 airplane, Nav Canada, which is Canada’s civil air navigation service provider, observed the FMS map displaying an incorrect turn for the Fort St. John airport instrument landing system runway 29 missed approach while using temperature compensation. Nav Canada assumed this was only an issue with the map display and reported the incident to Rockwell Collins.

Rockwell Collins subsequently determined that an error in the design of the Pro Line 4 and Pro Line 21 FMC software causes changes to the procedure-defined turn direction when the procedure has been significantly modified. The FMS will change the planned database turn direction to an incorrect turn direction when the altitude climb field is edited, and the flight crew may not notice the change during climb. The FMS will also change the planned database turn direction to an incorrect turn direction if the

temperature compensation is activated, which may go unnoticed by the flight crew with the increased workload involved with a missed approach procedure. Editing the altitude or using temperature compensation does not change the flight segment. However, due to the design error, the software thinks the flight segment has changed. The change of the planned turn direction can occur for either left or right turns.

The FMS commanding incorrect turn direction may result in a collision or controlled flight into terrain.

Related Service Information under 1 CFR part 51

We reviewed Rockwell Collins Service Information Letter, CSU-XX00-18-1, dated June 27, 2018. The service letter contains procedures for disabling the automatic temperature compensation option in Pro Line 4 and Pro Line 21 FMC systems. We also reviewed Rockwell Collins Service Information Letter FMC-XX00-18-1, dated June 27, 2018. The service letter provides instructions for revising the Limitations section of the AFM by adding prohibitions on editing altitudes for specific Pro Line 4 and Pro Line 21 Flight Management Systems. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

Proposed AD Requirements

This proposed AD would require disabling the automatic temperature compensation feature on the FMS through the CSUs. This proposed AD would also require revising the Limitations section of the AFM by adding limitations on the use of the temperature compensation feature and the editing of altitudes.

Costs of Compliance

We estimate that this proposed AD affects 2,855 products installed on airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
CSU strapping change	2 work-hours X \$85 per hour = \$170	Not applicable	\$170	\$485,350
Revision to the AFM Limitations section	.5 work-hour X \$85 per hour = \$42.50	Not applicable	\$42.50	\$121,337.50

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance

and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to small airplanes, domestic business jet transport airplanes, and associated appliances to the Director of the Policy and Innovation Division.

Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

Rockwell Collins, Inc.: Docket No. FAA-2018-0977; Product Identifier 2018-CE-041-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to Rockwell Collins, Inc. (“Rockwell Collins”) Pro Line 4 and Pro Line 21 Flight Management Systems installed on airplanes, certificated in any category, that has a flight management computer (FMC) with a Rockwell Collins part number (RCPN) listed in paragraph (c)(1) of this AD and with a configuration strapping unit (CSU) listed in paragraph (c)(2) of this AD.

(1) FMC-3000 RCPN 822-0883-031, -036, -038, -040, -041, -053, -054, -056, -057, -058, -059, -060, -081, -082, -083, -084; FMC-4200 RCPN 822-0783-022, -025, -028, -032, -036, -039, -040; FMC-5000 RCPN 822-0891-021, -027, -028, -034, -040; or FMC-6000 RCPN 822-0868-074, -075, -082, -083, -084, -085, -087, -089, -090, -109, -110, -111, -112, -113, -114, -116, -117, -122, -123, -127, -130, -132, -133, -134, -139.

(2) CSU-3100 RCPN 822-1363-002, CSU-4000 RCPN 822-0049-002, or CSU-4100 RCPN 822-1364-002.

Note 1 to paragraph (c) of this AD: To determine the CSU and FMC unit RCPN, refer to the aircraft manufacturer or applicable STC holder maintenance instructions for accessing them.

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 3460, Flight Management Computing Hardware System.

(e) Unsafe Condition

This AD was prompted by reports of the FMC software issuing incorrect turn commands when the altitude climb field is edited or when the temperature compensation is activated. We are issuing this AD to prevent the FMC from issuing an incorrect turn direction command. The unsafe condition, if not addressed, could result in a collision or controlled flight into terrain.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Disable the Temperature Compensation

Within the next 12 months after the effective date of this AD, disable the automatic temperature compensation feature on the CSU by following steps (2) through (6) of the Instructions in Rockwell Collins Service Information Letter CSU-XX00-18-1, dated June 27, 2018.

(h) Revise the Airplane Flight Manual Limitations

Within the next 12 months after the effective date of this AD, revise the airplane flight manual by adding the information from step 2 of the Aircraft Flight Manual Recommendation in Rockwell Collins Service Information Letter FMC-XX00-18-1, dated June 27, 2018, into the Limitations section of the AFM.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Wichita ACO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the

manager of the ACO, send it to the attention of the person identified in paragraph (j)(1) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(j) Related Information

(1) For more information about this AD, contact Avi Acharya, Aerospace Engineer, Wichita ACO Branch, FAA, 1801 Airport Road, Room 100, Wichita, Kansas 67209; phone: 316-946-4192; fax: 316-946-4107; email: avishek.acharya@faa.gov.

(2) For service information identified in this AD, contact Rockwell Collins, Inc., Collins Aviation Services, 400 Collins Road NE, M/S 164-100, Cedar Rapids, IA 52498-0001; telephone: 888-265-5467 (U.S.) or 319-265-5467; fax: 319-295-4941 (outside U.S.); email: techmanuals@rockwellcollins.com; Internet: http://www.rockwellcollins.com/Services_and_Support/Publications.aspx. You may view this referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

Issued in Kansas City, Missouri, on November 26, 2018.

Melvin J. Johnson
Aircraft Certification Service
Deputy Director, Policy and Innovation Division, AIR-601

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